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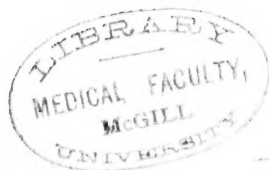
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SPONTANEOUS OR IDIOPATHIC CHELOID.

WITH THE
REPORT OF A CASE.

BY

R. H. MARTIN, M.D., CHATHAM, ONT., 1896

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SO-CALLED SPONTANEOUS OR IDIOPATHIC CHELOID.
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(From the Molson Pathological Laboratory of McGill University.)

"Pathologically," says Fagge, or more truly Pye-Smith, "cheloid is not a mere hypertrophy nor a granuloma, but a fibro-cellular new growth, a true sarcoma, sometimes consisting chiefly of spindle cells, sometimes more exclusively of fibres. It has two characteristic marks of sarcoma apart from its histology—it is very apt to recur again and again after removal; while on the other hand it does not reappear in the neighbouring lymph glands or in the viscera."

While the above statement is perhaps a little extreme, inasmuch as it tends to include cheloid among malignant growths, nevertheless it very clearly indicates what cannot be gainsaid, that cheloid formations, whether true or false, possesses characters which we associate with true tumours. It is the continued local overgrowth of connective tissue cells, without the evidence of continued irritation or other cause, that is the special feature of these curious neoplasms.

Every since the first full study by Alibert, at the beginning of the century, there has been difficulty and debate in assigning to cheloid growths a satisfactory place. As is well known, there may be extensive and redundant connective tissue formation in connection with scars and burns and other injuries of the skin and subcutaneous tissues, and the histological appearances of these new growths, which are the results of traumatism, may be identical with those of the true cheloid of Alibert in all respects save one, namely, that in true cheloid the hyperplasia is unconnected with any clear indication of involvement of the epidermis. In the false cheloids we find evidences that the skin immediately above the growth is of the cicatricial type and is deprived of its papillæ, whereas in true cheloid the tumour is covered with normal skin, unaltered, save by stretching and flattening in such cases as those reported by Crocker and Babes, where the tumour has rapidly attained a large size. It is this fact that the false cheloids clearly develop as a result of primary traumatism that has for long made observers unwilling to classify them as true tumours and to seek to separate them sharply from the true cheloids, in which

trauma would not seem to have played so important a part; nevertheless the conviction has been steadily growing that the true cheloids have equally a traumatic origin, and thus a study of these forms of growths, both true and false, assumes an especial importance in connection with the primary causation of true neoplasms in general.

It is the modern English and German dermatologists more especially who have emphasized the impossibility of making an ætiological distinction between the true and the false growths. Foremost among these is Jonathan Hutchinson, who states definitely that cheloid cannot exist "without being a disease of scar, no matter how minute the scars may have been." He describes a case (that of Mrs. G.) where the growth originated as a little pimple; growth was slow, but resulted in the production of a typical cheloid mass four inches long and one and a half inches wide. At the end of twenty years it was still aggressive at the greater part of its border, was "itchy" and often painful. Crocker also concludes that the division of true and false cheloid is unsound, both from clinical and anatomical grounds, for true cheloid may be caused from unnoticeable injuries. Van Harlingen, of Philadelphia, states that he has never seen a case of spontaneous cheloid, and holds that cheloid can never occur save as a sequel of cicatricial formation. Unna emphatically remarks that the condition is never spontaneous ("ueberhaupt wohl nie spontan"), and he adds that the apparently spontaneous isolated cheloids of the sternum (the most frequent region of development) are the effects of scratching on account of seborrhœal eczema of the sternal region.

The pathological anatomy of the so-called spontaneous and of cicatricial cheloid is the same. Both are composed of bundles of connective tissue, forming a close network, and of a certain number of fusiform cells. The relative proportion of the two elements depends upon the age of the growth. In the older growths fusiform cells are rare, while in recent cheloid they are numerous, sometimes forming nests in the meshwork of the connective tissue. The more recent the growth, the more vascular and the nearer the approach in structure to sarcoma; the older the growth, the closer its resemblance to a pure fibroma.

But while thus histologically the two forms may be identical, and while this view exists that ætiologically no true distinction can be drawn, it must be added that there are still firm adherents to the view that cheloid may arise spontaneously.

Thus Ohmann-Dumesnil reports the case of a mulatto who was vaccinated on the right arm when three years of age. When the

vaccination healed it left a small tubercle on the site of the scar, and at eight years of age the tubercle began to enlarge and continued to do so until it became the size of a silver dollar in circumference; then new growths began to appear on the right arm only and continued to enlarge. They next appeared upon the breast, then upon the hips, next upon the left arm, then upon the face, and followed the same course as the above tumour. Small tubercles appeared in various regions, and developed into cheloid tumours in their turn, until at last they became very numerous.

The tumours were of a doughy feel and freely movable upon the subjacent connective tissue, and they seemed to be entirely unconnected with the fascia of the muscles or the intimate connective tissue which binds this fascia to the overlying structures. Handling the tumours did not cause pain, unless neuralgia was present at that particular time, when the tumours were very sensitive. After a tumour reached a certain period of growth it began to throw out claw-like prolongations from its periphery, (whence the condition derives its name,—“chele,” a crab's claw).

In this case there was no history of any injury whatever, not even a cut or a scratch, except at the point of vaccination. Taking these facts into consideration, Ohmann-Dumesnil came to the conclusion that the growths appeared spontaneously, and he considered it positive proof that the case was one of idiopathic cheloid.

In the *Gazette des Hôpitaux* for 1890 Plieque argues strongly in favour of the existence of spontaneous cheloid. While he acknowledges that the two varieties run into each other, and that an entirely spontaneous character is difficult to prove, he considers that the observations of Kaposi, Erasmus Wilson, Vidal and Schwimmer, including 72 cases in all, leave no doubt as to the existence of true spontaneous cheloid. In Schwimmer's case, referred to by him, the patient developed 150 cheloidal tumours, varying in size from that of a pea to that of a hickory nut, within six years. The lesions were seated on the right lateral thoracic region. The unilateral distribution and a great number of the growths appeared to negative the view of a cicatricial or traumatic origin.

A discussion of the relative value of these two opinions regarding the nature of spontaneous cheloid will perhaps best be undertaken after I have described the case which has come under my observation.

L. Le B., aged 20, milliner, is one of a family of eight children, Her father and mother are alive and well. The family history is good, with the exception that her grandfather had a white lump removed from his left eyebrow, the nature and characteristics of the

growth not being known. The patient has had the diseases of childhood, measles, whooping-cough, etc., but otherwise has always been healthy until about four years ago, when she noticed a very small growth which looked like a little pimple on her left shoulder. This growth gradually enlarged and in about a year began to be painful (sharp stinging pains) and became very full of small blood vessels.

It now grew very rapidly, and in another year it was two inches long and three-quarters of an inch wide, and was then removed by the knife. In about three weeks it recurred and was as large as it had been previous to operation, and full of small vessels; it was also painful. In about four months it was again cut out, and it returned even sooner than before and was as large as ever. In three or four months the growth was once more removed, but this time by means of a "plaster." It has never returned, but there remains a very large flat cicatrix, which is larger than the tumour ever was. The patient was then free from any growth until about a year ago, when she noticed another coming in the form of a small pimple on the outer side of the right arm just above the elbow.

This growth gradually enlarged and was there for about nine months. On April 15, 1895, Dr. J. H. Duncan, of Chatham, Ontario, very kindly asked me (then unqualified) to accompany him, when we saw the case for the first time.

Upon examination, a well-marked cicatricial tumour was found about one inch long and one-third of an inch wide on the outer side of the right arm just above the elbow. This tumour was white, glistening, oval in shape, harder than the surrounding tissue, and was elevated about one-tenth of an inch above the skin; the edges of it where it joined the skin were irregular and appeared like little claws. She complained of it being itchy and painful.

Upon further examination another tumour was found on her back directly in the median line over the second lumbar vertebra. This growth was about the size of that upon her arm, had the same characteristics and was painful and itchy. When we made the skin tense and with the light shining on it we noticed, principally on the outer side of the right arm, in several places, clusters of flat, small, round, cicatricial spots which were white and glistening. There were several clusters of these and each cluster contained about four or five spots. The skin being relaxed these clusters were unnoticeable. Dr. Duncan removed the tumour from the right arm and I brought it to the Pathological Laboratory of McGill University, and prepared specimens from it for microscopical examination.

The patient was put on a treatment of eight grain doses of citrate

of iron and cinchonidine after each meal and a dessertspoonful dose of "Startin's Mixture" (mag. sulph., ferri sulph., acid sulph. dil., tr. gentian. co., aqua) before meals. She was also given potassium iodide ointment to apply externally.

I saw the patient again on July 24, 1895. Her right arm was not yet entirely healed, there being a scab covering what promised to be a large cicatricial surface. Upon further examination I found that the clusters we had seen upon tension of the skin had all disappeared and there remained only the tumour on her back, which was also gradually diminishing in size. Before leaving the patient I made a few small needle scratches in her left arm, for the purpose of noting her proneness to scar formation. The scratches were not deep enough to draw blood. I saw the patient on September 25, 1895. The scab had fallen from the wound on the right arm, and there remained a very rough cicatrix, which was much more extensive than the original wound. On her left arm, where the needle scratches had been made, the tissue was healed, but I could distinctly recognise little nodular lines of cicatricial aspect. These lines were composed of rows of little papules at the site of the previous needle scratches. The patient when I last saw her was enjoying perfect health, the only growth remaining being the one on her back, which was gradually becoming absorbed.

Microscopical Examination of the Excised Cheloid Mass.—I prepared and examined sections of the growth, and came to the conclusion that I was dealing with a characteristic dense connective tissue overgrowth, but to make assurance doubly sure I submitted my specimens to Dr. Wyatt Johnston, who favoured me with the following report: "In the subcutaneous region there is dense fibrous tissue arranged in bands showing very few nuclei. These fibres have an irregular, wavy course, and tend to run parallel to the surface of the skin, rather than perpendicularly. In this fibrous tissue small blood vessels are seen at intervals, both arteries and veins having thickened walls very rich in nuclei.

"There is some small-celled infiltration in the adventitia of these vessels. At a few points throughout the section are bundles of longitudinal fibres with spindle-shaped nuclei. These fibres branch and are possibly cutaneous nerve elements, but nothing can be seen which has the typical structure of a neuro-fibroma. In places there is increase of the nuclei of the corium and the rete layer is well marked and thick. The papillæ are very distinct, and in places the vascular twigs entering them show excessive numbers of nuclei; but as a rule the nuclear proliferation in the vessels becomes less distinct

as they reach the region of the corium. The arrangement of fibrous tissue into bundles is less marked in the corium than in the deeper layers. The fibrous tissue and proliferation of nuclei does not seem to be connected with the hair follicles."

A study of this case reveals therefore the following features :

1. That the primary growth began as a pimple.
2. That the original tumour appears from the history given to have possessed all the features of true cheloid.
3. That there was a peculiarly well-marked tendency to local recurrence after extirpation.
4. That eventually the patient exhibited a predisposition towards the development of multiple cheloid growths, in other regions.
5. That in one case, at least, the development of the "secondary" cheloid growth was seen to follow upon the development of a small red pimple.
6. That scratches upon the skin insufficient to draw blood became the seat of rows of minute nodules, which presumably were hyperplastic and of the same nature as the cheloid growths elsewhere.
7. That upon stretching the skin over the arm, clusters of similar minute nodules could be recognized lying beneath it, which might have been initial stages in the cheloidal growth.
8. That, as in other recorded cases of multiple cheloid, the tumours showed a very definite tendency towards absorption and eventual disappearance.

Studying these features, and comparing them with those of previously recorded cases, it will be seen that so far as regards the origin of the condition there must be very grave doubts here as to spontaneous or idiopathic origin. In this case, as in that of Jonathan Hutchinson, already epitomized by me, the condition originated as a pimple, and the very fact that the existence of such a pimple on the shoulder was remembered by the patient would seem to indicate that it was of an irritative or irritating character ; and I do not think that I go too far in presuming that therefore it was of inflammatory nature. There are a fair number of cases on record in which true cheloid has originated around small acne pustules. Lehonneur has recorded a case in which the pressure of a shirt stud was the primary cause ; and there are other cases in which similar slight injuries, such as frequent pressure of a basket upon the shoulder and scratches by brambles in picking berries, seemed very clearly to have been the origin of the disturbance. This being so, I gravely doubt whether by any possibility my case can be referred to as one of spontaneous cheloid, and further, the inconsiderable initial lesion in this and in several other

cases makes me doubt whether among the seventy-two cases brought together by Plicque there may not in all have been a primary slight irritative disturbance. That is to say, I am led by a study, not only of this case, but also of the literature of the subject, to agree with Jonathan Hutchinson and the other observers already mentioned, and to hold that the term spontaneous or idiopathic cheloid is a misnomer, and to believe that in every case the *primary* cheloid formation begins around a focus of inflammation. Even in Ohmann-Dumesnil's case, strongly as at first sight it appears to favour the theory of the spontaneous nature of cheloid, it will be observed that the primary growth developed in the cicatrix left after vaccination.

Even where the cheloid formations are multiple the case here brought forward would seem to indicate that similar foci of slight inflammatory disturbance are the starting points of new growths, and the little experiment made by me would, I think, definitely indicate how very slight the inflammatory disturbance need be in order to lead to this hyperplasia of connective tissue.

This same experiment makes it equally evident that in this and other cases of multiple cheloid there is a singular predisposition towards connective tissue overgrowth, even where there is a minimal irritation, but this predisposition is a different matter from true spontaneity, and in these cases we have to presume that a slight inflammation, instead of as in ordinary cases leading to a multiplication of connective tissue cells which ceases with the cessation or removal of the irritant, leads to a multiplication which continues long after the primary irritant has ceased to be at work. And it is this character of growth after the cessation of the primary irritation which, it seems to me, removes these cheloids from the class of simple inflammatory lesions and places them, in accordance with Dr. Adami's suggestion at a recent meeting of the Montreal Medico-Chirurgical Society, among the class of true neoplasms.

Whether slight chronic inflammation alone is sufficient to account for all the cheloid growths in this and other cases is a matter which I must acknowledge admits of debate. For example, I cannot satisfactorily explain to myself the causation of the clusters of minute nodules which could be recognized at one period upon stretching the skin over the arm. I have supposed that these indicated the earliest stages in the cheloidal growth. Here I may be wrong, for in the first place I have not found any record or description of similar appearances by other observers; and in the second place it is to be noticed that the little nodules died away without attaining any increased size. But on the other hand, it deserves to be pointed out that the results of scratching the skin led not (as might have been expected) to a uniform

line of new connective tissue development, but to the production of rows of minute nodules very similar to those here described; and it is worth noting also that in Mr. Hutchinson's case of Mrs. G., to which I have already referred more than once, similar though larger papules were to be recognized along streaks which, as the author remarks, looked like "a scratch from a pin which had inflamed." One of these streaks had been present for several years, the other for a year, and Mr. Hutchinson points out that (as I have also found to be the case) the cheloidal mass originates as a small well-defined nodule, which only at a later date, when it has become relatively large, sends out the characteristic "crab's claws" into the surrounding tissue. I am therefore inclined to hold to my belief that these little subcutaneous nodules are to be regarded as the initial stage of the cheloid formation. But that being so, I have, as I say, to acknowledge my ignorance of their exact origin and to leave the matter open, just as I own it is difficult to understand why in Schwimmer's case the 150 or so cheloid nodules were thickly studded over the right lateral thoracic region and developed in no other region of the body. The most I can venture to state is that reasoning from the analogy of those cases in which from the very first the development of these growths has been closely observed, it is possible to assume that in every case there was some preliminary irritation.

In conclusion I wish to thank Dr. J. H. Duncan for the kind assistance afforded me in the clinical study of this case, as also Professor Adami and Dr. Wyatt Johnston for their valuable advice and suggestions in regard to its pathological features.

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